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⑶ A combined pouch and liquid applicator.

⑷ The invention provides a combined liquid holder and liquid applicator which may be used without the liquid contaminating the hands of the user. The liquid is contained within an inner flexible and burstable sachet which is itself inside a bag which forms an outer sachet. An absorbent applicator is secured to the outer sachet and liquid is held away from contact with the applicator by suitable restraint means. To use the product which may be called a pouch applicator the inner sachet is burst by pressure from the outside the outer sachet or bag and the liquid impregnates the applicator which may then be used as a wiper.

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**Description****A COMBINED POUCH AND LIQUID APPLICATOR**

This invention is concerned with the provision of a pouch product adapted to contain liquid and including an applicator by means of which the liquid may be used. This product is hereinafter referred to simply as a pouch applicator. The invention also includes the provision of a machine by means of which the pouch applicator may be made and filled.

The pouch applicator which combines a liquid holding pouch and a liquid applicator may be used as a wipe for toiletries, disinfectants, paints, cleaners and so forth and may therefore be used e.g. for applying polish to furniture, floors, motor vehicles and for other purposes.

According to the present invention there is provided a pouch applicator comprising a flexible bag forming an outer sachet, a liquid in an inner sachet within the bag, an absorbent applicator mounted on the bag, restraint means to isolate the liquid in the inner sachet from the applicator until it is desired to use the liquid and an opening leading from the bag to the applicator forming entry means to allow the liquid to impregnate the absorbent applicator when the restraint means is rendered inoperative.

One advantage of our new pouch applicator is that the product can be used with the bag as a handle so that the user does not actually touch the applicator and so does not come into contact with the liquid.

A machine for making and filling the pouch applicator includes shaping and folding means to form sheet plastics or other suitable material into a desired shape, sealing means to seal the material to form the bag, filling means to feed liquid into the inner sachet within the bag and means to secure an absorbent applicator to the bag.

In order that the invention may be more clearly understood reference is now directed to the accompanying drawings given by way of example in which:

Fig. 1 is a pictorial view of one form of a pouch applicator embodying the invention,

Fig. 2 is a sectional view of the pouch shown in Fig 1,

Fig. 3 is a view of the pouch in a folded condition.

Fig. 4 shows diagrammatically a step in the manufacture of the pouch.

Fig. 5 is a front view of a finished pouch.

Fig 7 is a side or edge-on view of the pouch before bursting of inner sachet,

Fig. 8 is a view similar to Fig. 7 after bursting of the inner sachet,

Fig. 9 is a view of one type of forming and filling machine,

Fig. 10 is a detail view of another type of forming and filling machine,

Fig. 11 is a view of another type of forming and filling machine,

Fig. 12 and 13 are views of a modified form of pouch, and

Figs. 14 to 17 are views of some modified forms of pouch,

Referring first to Figs. 1 to 3, it will be seen that the pouch applicator shown includes an inner sachet 1 within an outer flexible bag 2 which forms an outer sachet. The inner sachet 1 is sealed and contains a liquid which is prevented from reaching an absorbent applicator 4 until the sachet 1 is broken. It will be noted therefore that the liquid is inside the bag 2 but the walls of the inner sachet 1 form restraint means to isolate the liquid from the applicator. The bag 2 has an opening or openings 3 communicating with the rear of the absorbent applicator 4 which may for example be a sponge or an absorbent cloth.

When it is desired to use the liquid the bag 2 is squeezed thus bursting the inner sachet 1 which allows the liquid to flow into bag 2, then through the opening(s) 3 into the applicator 4. The Applicator 4 becomes impregnated with the liquid and the Applicator when in this condition may be used as desired e.g. in order to apply the liquid to a surface for cleaning or other purposes.

A pouch in accordance with this invention can be made of any suitable flexible material preferably a plastics material, the inner sachet 1 being burstable by squeezing and the bag 2 preferably being somewhat stronger than the inner sachet 1.

The embodiment described above and as illustrated in Figs 1 to 3 therefore provides a pouch comprising an inner sealed flexible and burstable sachet 1 containing a liquid, an outer flexible and preferably stronger bag 2, an absorbent applicator 4 secured e.g. adhesively to the bag and opening(s) 3 in the bag 2 through which liquid in the inner sachet 1 can flow into the applicator 4 after the inner sachet 1 has been burst.

In Fig 3 the pouch is shown with the bag 2 folded round the applicator 4 after first use so that the applicator 4 is substantially enclosed by the bag material for possible further use.

In this specification the term liquid is used in a broad sense to include not only liquids but also all flowable pastes that are sufficiently mobile to impregnate the applicator 4.

A pouch in accordance with this invention may be made very easily on a suitable form and fill machine similar to that described in our Patent Application No.8630729, the applicator being adhered to the bag either as a separate later step or during the formation of the bag.

Referring next to Figures 4 to 8 the pouch applicator is preferably made using a longer length of back material A, a short length of front material B, folded material C and sponge or like material to form the applicator 4, sealing being effected along side edges 5, 6 and end edges 7, 10 - see Fig 5 - to secure the applicator in position and to form the inner closed sachet 1 and the bag (2) and the applicator 4 being sealed to the shorter length of material at 9. Looking at Fig 6 it will be seen that the applicator 4 is sealed to the longer length of material along side seals 5 and 6 and along an end seal 10.

Fig. 7 shows the completed pouch applicator with the inner sachet 1 filled with liquid e.g. paint or cleaning fluid and Fig. 8 shows the pouch after bursting of the inner sachet 1 by pressure from outside the bag which permits the liquid from the inner sachet 1 to impregnate the applicator 4 as indicated by the arrows 11. It will be understood that the inner sachet 1 may be filled with liquid before the seal 7 or a side seal 5 or 6 is effected.

Fig. 9 shows diagrammatically one embodiment of a form and fill machine for making a pouch applicator in accordance with this invention and for filling the inner sachet 1 with liquid. In Figure 9 applicator material 4' is fed from a roll 20 to form the applicator 4, burstable thin inner sachet material 1' is fed from a roll 21 to form the inner sachet 1 and the material 1' is folded to the shape shown in Fig 1 to produce the inner sachet 1. Back and front longer and shorter material lengths A' and B' and fed from rolls 22 and 23 to form the back and front of the bag 2. Liquid is provided by a supply pump 24 along pipe 25. Suitable guide rolls are shown at 26, sealing is effected by reciprocable sealing elements 27 which are synchronised with intermittent forward feeding movements of the parts of the pouch.

In operation the parts of the pouch applicator are fed downwards through the machine to produce pouch applicators in the position shown in Fig. 5

The upper set of sealing elements 27 provide the seals 7, 9 and 10 and the lower set of sealing elements provide the seals 5 and 6 liquid being fed into the inner sachet 1 through the side seal 5 after the forming of the lower edge seal 6 of each pouch and before formation of the upper edge seal 5. In the embodiment of Fig. 9 finished pouches leave the machine in the position indicated by the just formed pouch shown below the machine in Fig. 9, ie. transverse to the direction of movement of the parts.

In the embodiment partially shown in Fig. 10 the feeding elements are the same as in Fig. 9 but sealing is effected by rotatable sealing member 27 which can be continuously rotated as the machine is operated. It is important to note that sealing element 27' seals only at the front so that seal 9 does not attach the material of the inner pouch 1 to the applicator 4, in order to allow liquid to contact the applicator 4 when it is desired to use the liquid.

In the embodiments described in connection with Figs 4 to 10 the applicator 4 is effectively secured to the inside of the bag see e.g. Fig. 8. In Figs 11 to 13 an embodiment of the invention is illustrated, including a machine in Fig. 11 and details of the pouch in Figs. 12 and 13, in which the applicator is secured to the outside of the pouch using e.g. hot melt glue in a box shape or like pattern, openings being punched or otherwise formed in one side prior to the glue being applied.

In Figs. 11 to 13 the same references are used for the corresponding parts as in Figs 4 to 10. Referring first to Fig. 11 absorbent applicator material 4' is fed from roll 20, burstable inner sachet material 1' is fed from roll 21 and bag or outer sachet material is fed from roll 30, is cut by a knife 31 into two lengths, 35, 36 which are fed forward over guide rolls 26. Openings 32 are punched or otherwise formed in

length 35 by a hole former 33 and glue is applied by a glue applicator housed within a box like housing 34. Preferably the glue is applied in a rectangular pattern 34' around the outside of the applicator 4. It will be understood that the glue used must be carefully selected to be suitable for use with the liquid in the pouch so that the glue is not melted by the liquid in the inner pouch when the inner pouch is broken and the liquid is allowed to impregnate the applicator 4.

Passing on now to describe Figs. 14 to 17, Fig 14 shows a pouch comprising a bag 2 of plastics material containing a sealed inner sachet 1 containing the liquid, the sachet 1 being freely positioned within the bag 2. Sponge or like absorbent material is connected to the bag, as shown, to provide the applicator 4 and openings 3 are provided as before. The sealed inner sachet 1 is therefore loosely or freely held within the bag 2 and the sealed sachet 1 forms restraint means so that the liquid is kept away from the applicator 4 until the sachet 1 is burst by pressure from outside the bag whereupon liquid can flow into the applicator 4 which is sealed along the outer edges but not along edge 6.

In Fig. 15 the liquid is held within a part 2a of the bag and is kept away from the applicator 4 by restraint means in the form of a clip 8. Removal of the clip 8 allows liquid to flow from a part of the bag 2 forming the inner sachet 1a into another part 1b of the bag 2 to reach the applicator.

In Fig. 16 restraint means in the form of a seal 8' isolates the inner sachet 1a from the part 1b and thus from the applicator until the seal 8' is broken by outside pressure. The embodiment of Fig. 17 is the same as the embodiment of Fig. 14 except that a flexible bottle-shaped sealed inner sachet is used to restrain the liquid instead of a barrel shaped sealed inner sachet 1 as in Fig. 14. In the Fig. 17 embodiment outside pressure is used to eject a stopper from the inner sachet 1 instead of bursting the sachet.

#### 45 Claims

1. A pouch applicator comprising a flexible bag forming an outer sachet, a liquid in an inner sachet within the bag, an absorbent applicator mounted on the bag, restraint means to isolate the liquid in the inner sachet from the applicator until it is desired to use the liquid and an opening leading from the bag to the applicator forming entry means to allow the liquid to impregnate the sponge like applicator when the restraint means is rendered inoperative.

2. A pouch applicator according to claim 1 wherein the pouch applicator is substantially rectangular in shape with the applicator secured to the bag at one end of the pouch applicator and with the inner sachet secured within the bag at the other end.

3. A pouch applicator according to claim 1 or 2 wherein the inner sachet is made of weaker

material than the bag.

4. A pouch applicator according to any of the preceding claims made by using a longer length of back material (A), a shorter length of front material (B), folded material (C) and sponge or like material to form the applicator (4) sealing being effected along side edges (5,6) and edges (7 and 10) to secure the applicator (4) in position and to form the inner closed sachet (1) and the bag 2 and the applicator (4) being additionally sealed to the shorter length of material at (9)

5. A pouch applicator according to claim 1 wherein the inner sachet (1) is freely or loosely positioned within the bag.

6. A pouch applicator according to claim 1 wherein the liquid is held within a part (2a) of the bag so that the part (2a) forms the inner sachet (1), the liquid being kept away from the applicator by restraint means (8 or 8')

7. A pouch applicator according to claim 1 comprising a flexible bottle-shaped sealed inner sachet provided with a stopper ejectable by outside pressure.

8. A pouch applicator according to claim 1 wherein the applicator is effectively secured to the inside of the bag although the main part of the applicator is outside the bag.

9. A pouch applicator according to claim 1 wherein the applicator is secured to the outside of the bag.

10. A machine specially adapted for making a pouch applicator according to claim 1 wherein the machine comprises feeding means to feed material to form the inner sachet, folding means to fold the inner sachet material to the required shape, feeding means to feed back-and-front longer and shorter material lengths to form the back and front of the bag, sealing means to seal the sides and the ends of the bag and to seal the inner sachet, feeding means to supply absorbent material to form the applicator, means to secure the applicator in position and supply means to feed liquid into the inner sachet before sealing is completed.

11. A machine according to claim 10 wherein the bag or outer sachet material is fed from a roll (30) and is divided (e.g. by knife 31) into two lengths (35,36) which are fed forwards over guide rolls (26), openings (32) being formed in length (35) by a hole former (33) and glue being applied by a glue applicator to secure the applicator (4) in position.

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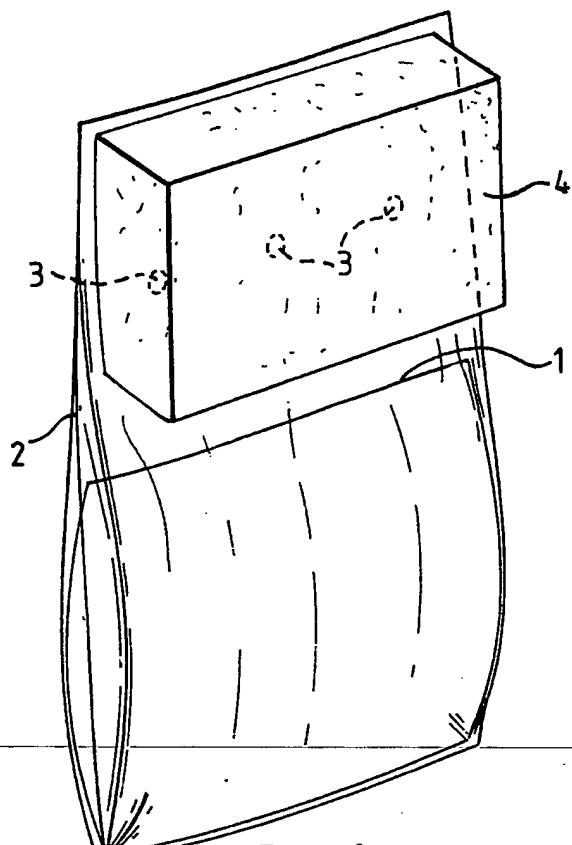
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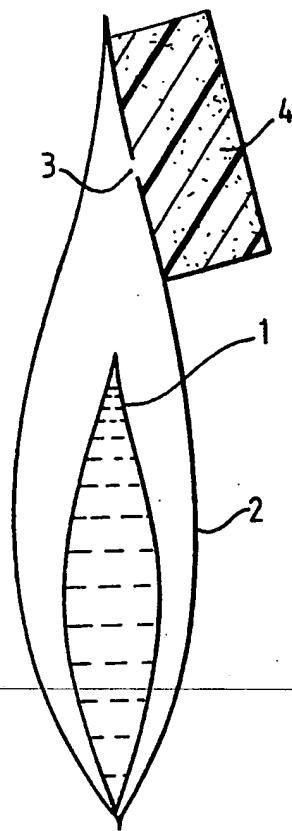
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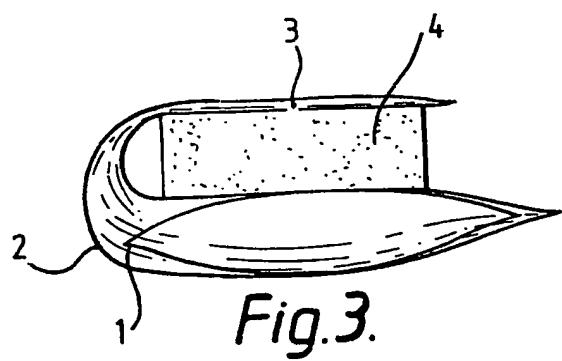
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*Fig. 1.*



*Fig. 2.*



*Fig. 3.*

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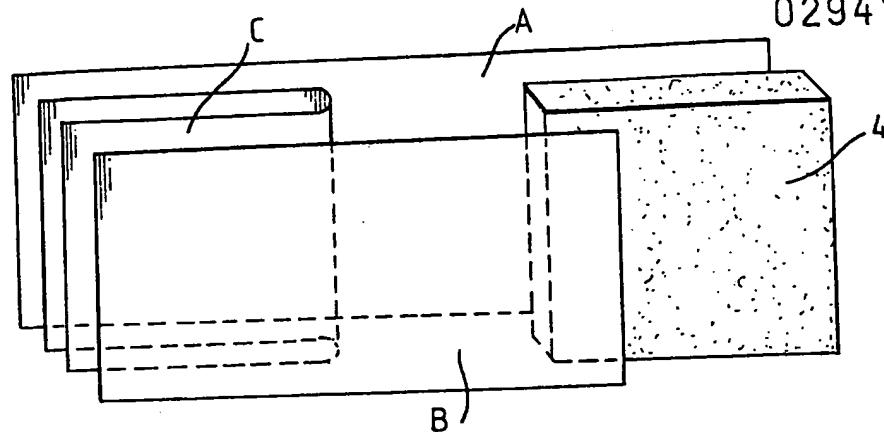


Fig.4.

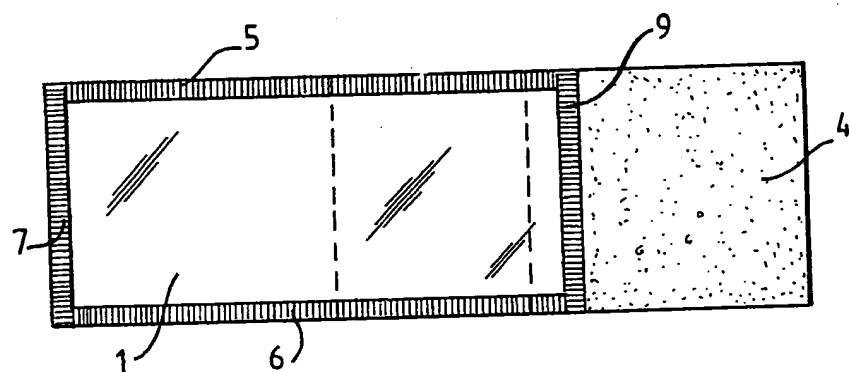


Fig.5.

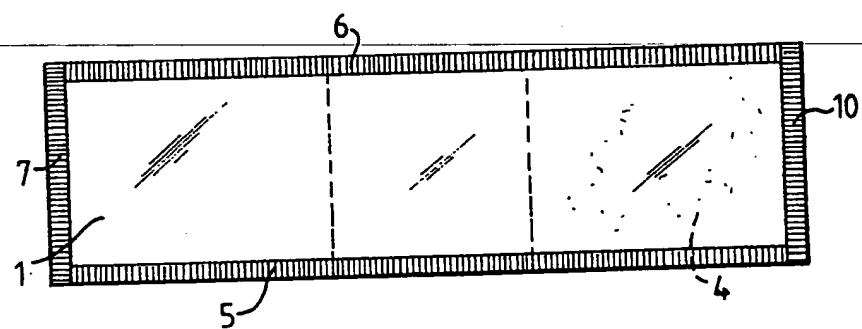


Fig.6.

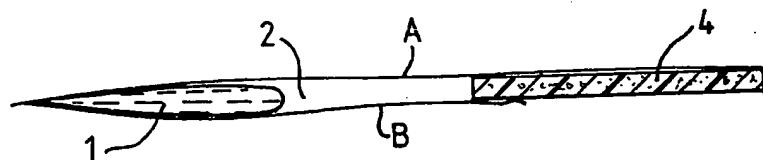


Fig.7.

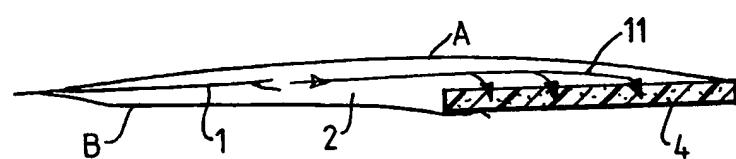


Fig.8.

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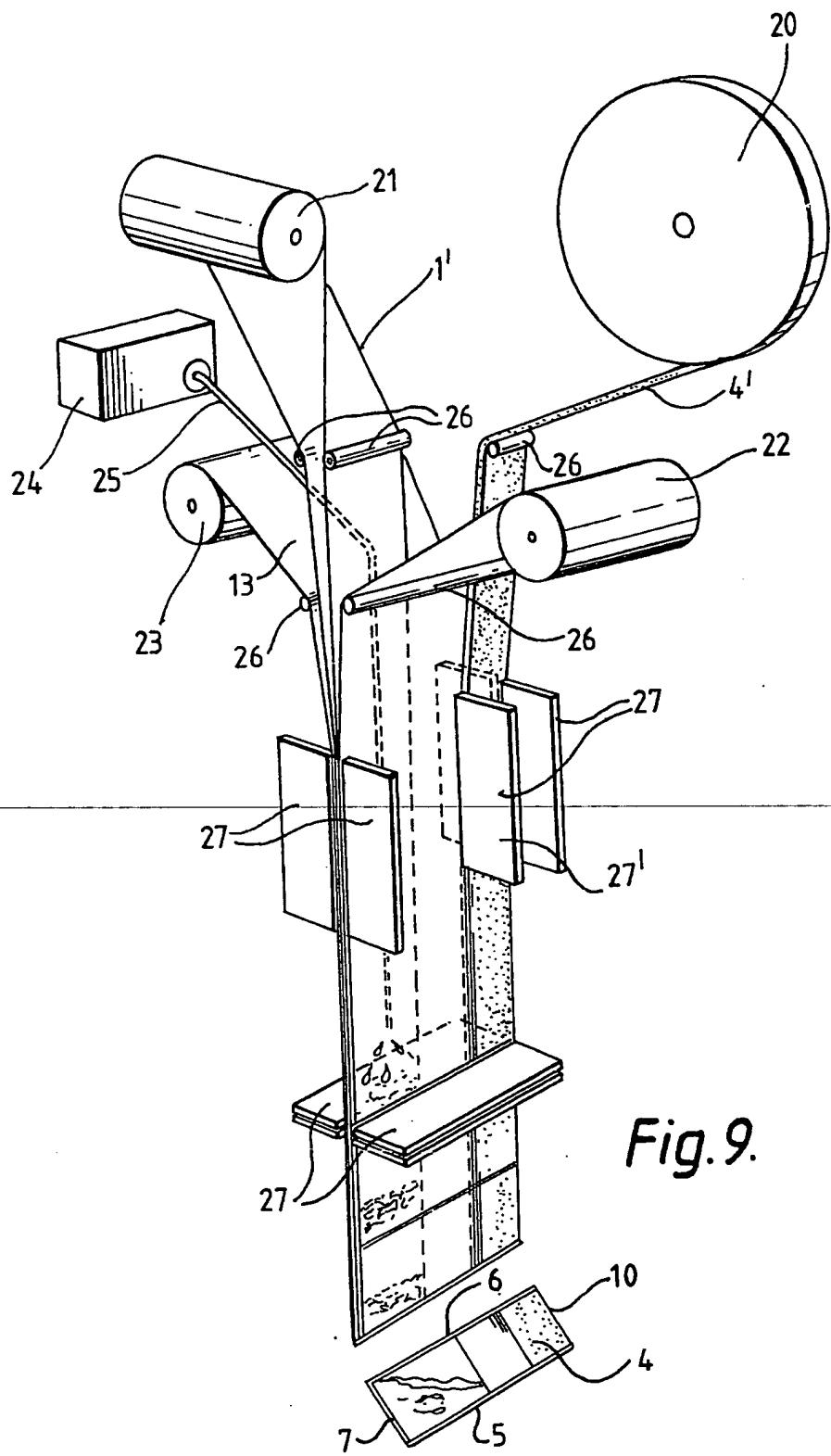


Fig. 9.

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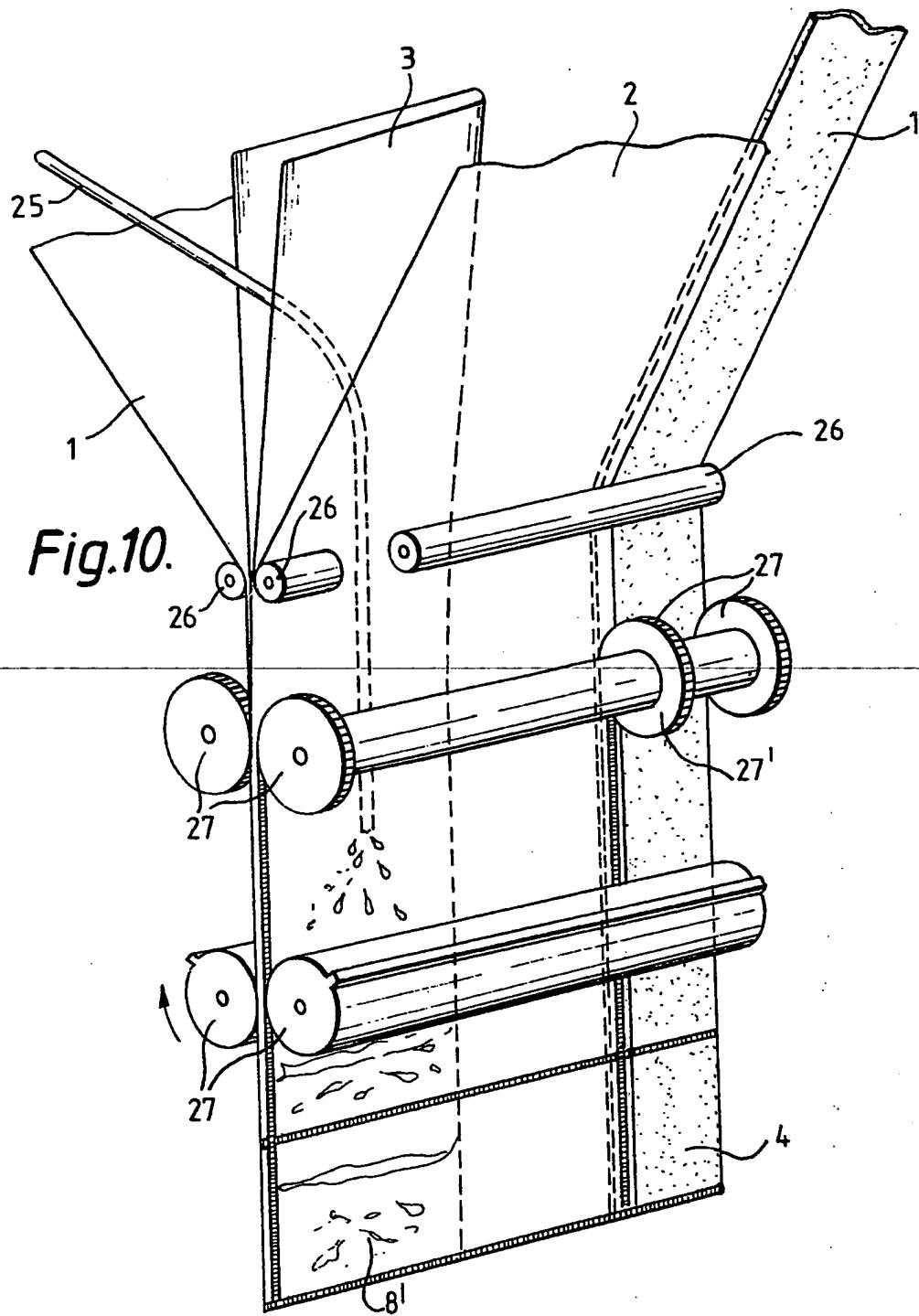


Fig. 10.

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Fig.11.

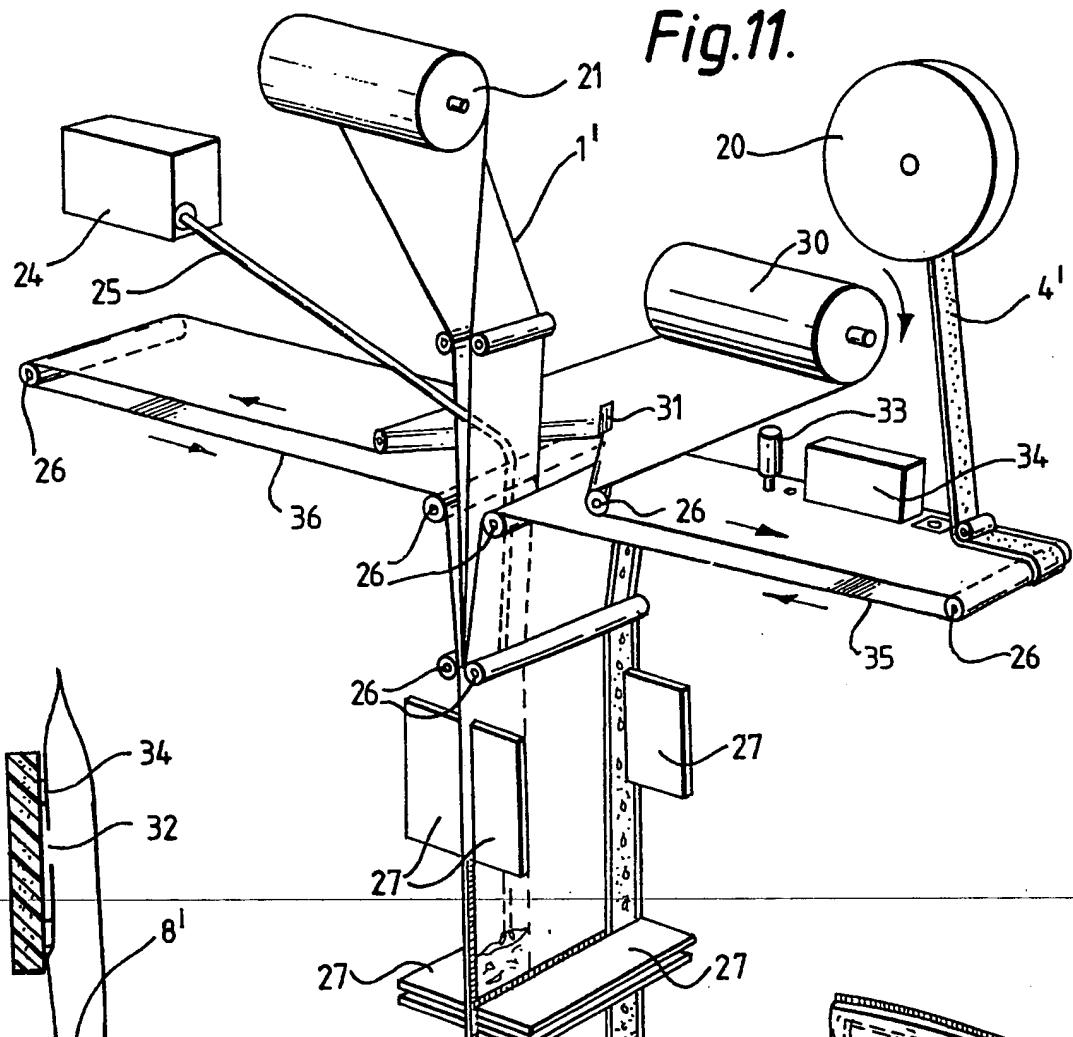


Fig.12.

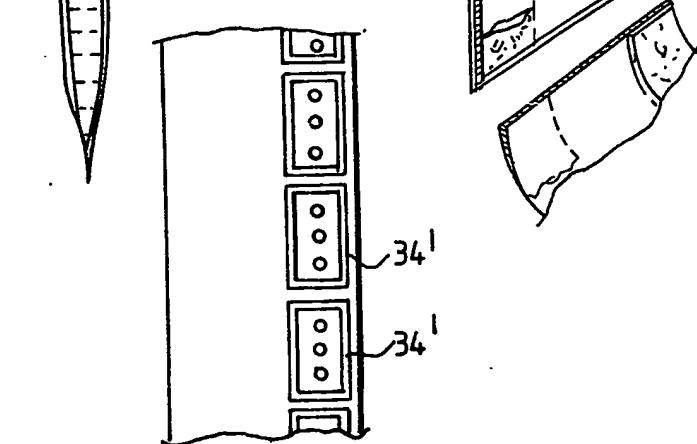


Fig.13.

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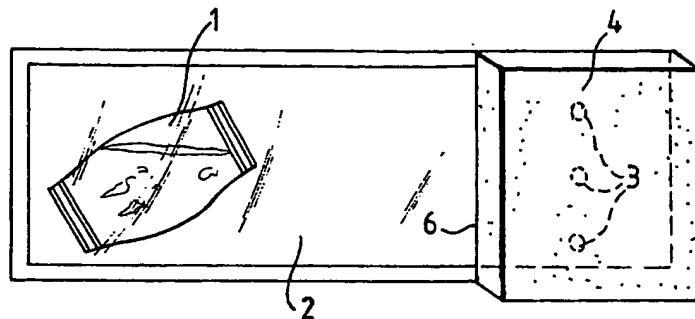


Fig.14

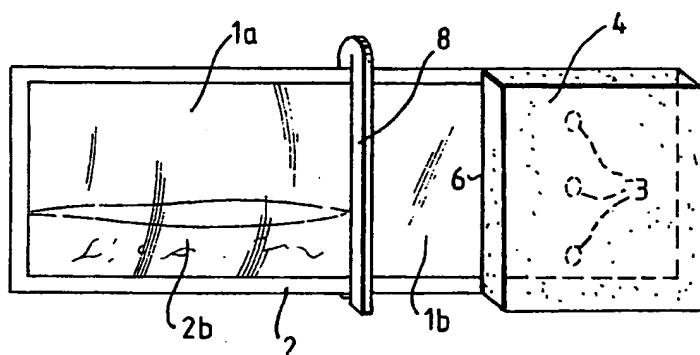


Fig.15.

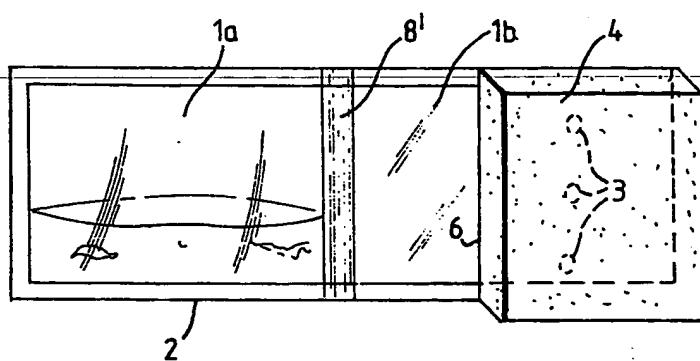


Fig.16.

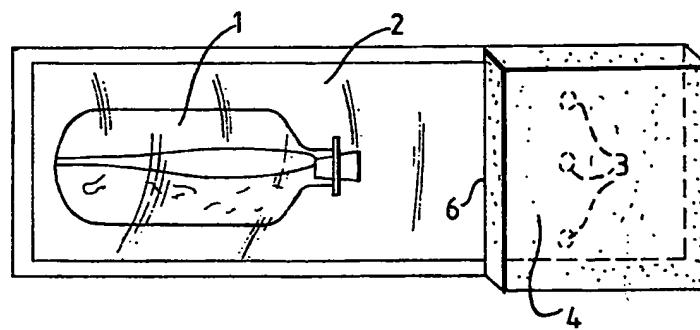


Fig.17.